



Personalising learning

Next steps in working laterally

David Hargreaves

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Specialist Schools Trust
EXCELLENCE AND DIVERSITY

Introduction

This is the first in a series of iNet publications focusing on personalising learning and leadership.

In the last year, much has been said and written about the need to personalise public services. David Miliband, in particular, has made a powerful case for personalised learning: 'A new generation of self confident, independent students is of course a challenge. But it is also a genuine opportunity significantly to raise the productivity of the education system – by tailoring teaching and learning to individual need, and developing students as more active partners in effective learning.' (November 2003)

However, he has spoken in broad terms and the Department for Education and Skills has not laid down a detailed specification or a national strategy. This leaves the way open for the teaching profession to take the lead – to define personalised learning in a way that can benefit young people in schools. Professor David Hargreaves has held a series of conversations with some 250 leaders in specialist and affiliated schools. Hargreaves' conclusion from these conversations is that personalising teaching and learning is realised through nine interconnected gateways:

- curriculum
- workforce development
- school organisation and design
- student voice
- mentoring
- learning to learn
- assessment for learning
- new technologies
- advice and guidance

– and that all of the nine gateways demand leadership from teachers and leaders of all levels.

In his presentation to the Transformation Through Global Networking conference in Melbourne (July 2004), he advanced this analysis and argued that three actions are necessary for the transformation of schools. These are: schools, educators and policy-makers need to design and work to a new educational 'imaginary' (a society's normal expectations); personalisation needs to be treated as a pathway to educational transformation; we need a radically different system of innovation and development and research for education.

Personalising learning

Hargreaves believes that in the 21st century educational imaginary there will be a new emphasis on customisation. Schools will move away from the 'Henry Ford' model (you can have any colour as long as it's black) to a 'Toyota' model where students are offered a customised package of activities and programmes to meet their individual needs. He sees personalising learning as:

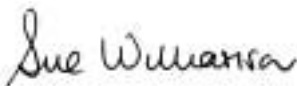
- a version of customisation in education
- the core of educational transformation
- involving incremental and radical innovation
- demanding a new approach to development and research.

The key innovation question for Hargreaves is: how can the whole school system, not just individual schools, become innovative? He believes that transformation through personalised learning demands networks of educators, schools, students, parents and support agencies. Networks facilitate the transfer of knowledge and practices. A new educational development and research system should make every teacher a potential innovator. It would recognise and reward practitioner-researchers and make every school leader a leader of innovation.

This publication contains a number of questions that need to be answered if the Specialist Schools Trust is to fulfil its mission of 'building and enabling a world-class network of innovative, high performing secondary schools...' and to develop its international arm – iNet.

In the next 18 months, David Hargreaves will lead a series of conferences held in partnership with the Secondary Heads Association (SHA). Each conference will focus on one or two of the gateways and will feature presentations from practitioners and academics. Pamphlets will be produced for each of the gateways and schools affiliated to the Trust will be given the opportunity to become development and research centres for individual gateways. Schools and school leaders, in partnership with one of the world's leading academics, will be at the forefront of defining this international educational priority.

Sue Williamson



Director, Leadership and Affiliation Networks,
Specialist Schools Trust

Successful reform does not only depend on the level and scale at which decisions are taken or performance is measured; it will require greater adaptive capacity in organisations at every level of the system... The challenge is to harness the adaptive potential of public organisations more directly to the task of creating public value... In other words, we need systems capable of continuously reconfiguring themselves to create new sources of public value.

Tom Bentley and James Wilsden, 2003

How far does the government want to go with personalisation? Is it just an attempt to bring better customer service into the public sector in response to complaints about over-centralisation and bureaucracy?... Or is it an idea that could sustain waves of reform, leading from incremental innovations to existing public services but eventually leading to more radical solutions that combine better public services with more capacity for self-organising solutions?

Charles Leadbeater, 2004

What is iNet?

iNet (international networking for educational transformation) is the international arm of the Specialist Schools Trust. Its mission is to create powerful and innovative networks of schools that have achieved or have committed themselves to achieving systematic, significant and sustained change that ensures outstanding outcomes for students in all settings.

All schools in England affiliated to the Trust are members of iNet, and schools and other educational organisations around the world are eligible to join. There is already a thriving iNet in Victoria, Australia, and networks are being established in Chile, China, Hong Kong, South Africa and Holland.

The iNet areas for development and research are the nine gateways for personalising learning, as identified by Professor David Hargreaves, plus leadership. There will be a series of publications written by some of the world's leading academics. *Personalising Learning: next steps in working laterally* is the first in the series. Other contributors to the series will include Professor Brian Caldwell, Professor Andy Hargreaves and Professor Alma Harris.

Contents

- 5 Chapter 1
Personalised learning and the nine gateways
- 13 Chapter 2
The dimensions of networks
- 19 Chapter 3
Distributed innovation
- 24 Chapter 4
Disciplined agendas
- 27 Chapter 5
Knowledge transfer
- 30 Chapter 6
Towards a new educational imaginary
- 33 Chapter 7
A network system for personalised learning
- 35 Chapter 8
Conclusion
- 36 References and further reading

1 Personalised learning and the nine gateways

Personalising learning is a major strand in the government's current education policies. So far it has been described in broad terms in ministerial speeches and has aroused interest among practitioners. As David Miliband, Minister for School Standards, put it: 'Personalised learning demands that every aspect of teaching and support is designed around a pupil's needs.' (September 2003)

At the heart of the concept is an old idea that has always appealed to, and been taken seriously by, practitioners in education. So what's new? While it is true that teachers actively design their teaching to meet the needs of students, it is recognised that that they are not entirely successful in this and that some needs of some students sometimes go unmet. The new challenge is this: can more be done to meet the learning needs of *all* students?

So personalising learning is a process that:

- reinforces some current practices in schools and classrooms
- demands modifications to some of these practices
- entails creating some new practices.

Personalisation may be treated as a version of what is called *customisation* in the business world, where in the last century there was a transformative change from Henry Ford's readiness to offer his customers a car of any colour, as long as it was black, to the revolution in the automobile industry created by the Japanese, whose success depended in part on putting the customer first and recognising that innovation should be user-driven, the better to meet their needs and aspirations.

Questions

Are our schools and classrooms closer to the world of Henry Ford or to that of the modern automobile industry? What are the implications of your answer for the scale of transformation involved in personalising learning?

If every school leader has to be a leader of innovation, what are the implications for the training and professional development of leaders?

Personalising means taking a novel angle on current practice and on innovation. It is not reducible to the idea that class sizes should be much smaller and that, if there were a very low teacher-student ratio, personalisation would automatically be realised. That illusion must be dispelled. It is more productive to look at personalisation from the different, but complementary, perspectives afforded by a series of *gateways*. From workshops with school leaders, it emerged that there are nine main gateways, each of which provides a distinctive angle on personalising learning by ensuring that teaching and support are shaped around student needs.

The nine gateways are shown opposite (figure 1).

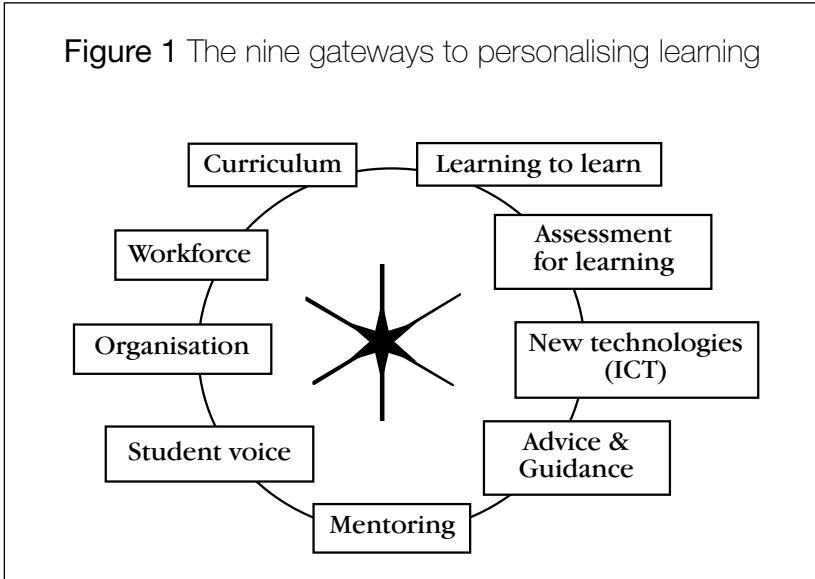
There are many possible gateways into the process of personalising learning. So why these nine? Why have others been excluded? There are several criteria.

Each theme is applicable to every school and classroom: it is an aspect of teaching and learning that is inescapable, though some aspects are given greater emphasis than others in any particular school and classroom

Each is already part of current professional practice in some form, however modest, but in some schools they are an area for pioneering innovation that is worth disseminating to others.

Each requires strong leadership, in the form of distributed leadership as well as from headteachers, if progress is to be made.

Figure 1 The nine gateways to personalising learning



Each is potentially a way of enhancing student motivation and commitment to learning, which is an essential prerequisite to raising achievement.

No school is at the leading edge in every theme.

Curriculum is perhaps the most obvious gateway for personalising learning. In the 14-19 reforms, it is recognised that students need greater choice than they have been offered since the introduction of the national curriculum after the 1988 Reform Act. This approach is controversial – should modern languages be optional after the age of 14? However, choice in this age group is not merely about national curriculum subjects, but also about the introduction of vocational options as well as location for study – the workplace or the college, not just the schoolroom. In key stage three the curriculum may not take the form of choice of subject, for the national curriculum is likely to be retained here. But the choice can be about how the national curriculum is taught and learned. There will be more experiments in teaching the content in forms other than single subjects or the dedicated lesson.

Enhanced choices, however, entail increased risks. Students may make choices that are ill-considered and, by closing off

options prematurely, against their interests in the longer term. Everyone acknowledges that the 14-19 reforms will require an improvement in our systems of advice and guidance to students and to their parents, both for individual learning plans and for help with options and career intentions.

Assessment for learning has already spread rapidly in the wake of the pioneering work of Paul Black and Dylan Wiliam. It is a sophisticated version of formative assessment in an age that has been dominated by summative assessment. At its core is a new way of understanding the relationship between the way teachers teach and students learn, so that assessment feeds not back to what has been done in a learning task but rather *forward*. This can help the student to learn more effectively and the teacher to contribute to the process of student learning by adjusting the teaching. It is becoming clear that assessment for learning helps students not only to master the content of their learning but also to improve their meta-cognitive skills, including the ability to learn how to learn.

Learning how to learn is a gateway to enhanced achievement and to the independence in learning that is a crucial developmental skill for students during the secondary years. It is one matter to ensure that students have basic skills: it is another that they want to use them and get pleasure in so doing; and it is yet another that they feel motivated and empowered to engage in further learning for the rest of their lives. The motivation and capacity to learn independently is crucial to personalisation, because it reduces dependence on the teacher and on the traditional classroom-based styles of instruction.

This is also true of the new technologies. There is growing confidence in the profession that they are a powerful aid to better teaching. They also give students more control over their learning and greater access to the resources and content that might meet individual learning needs. And they give students greater independence, since the technologies can be used in many different ways, places and times beyond school and so offer new flexibilities in the way learning can be personalised.

These technologies are one of the several drivers for workforce development. This involves change to the structure and function of the educational workforce, out in the community as well as in the school and classroom. It seems likely that as the medical profession developed a considerable expansion of the para-medical professions during the 20th century, the teaching profession will follow a similar line of development beyond the traditional technicians and teaching assistants of today. This enlargement of a more differentiated workforce is crucial to personalisation.

New roles also change the relationships between learners and those who support their learning: we can no longer speak simply in terms of teacher and taught. Many adults in the school undertake various forms of mentoring and coaching. Mentors outside the school are becoming of increasing importance, too. This is particularly so for those with needs that are hard to meet in the school – the exceptionally able and the disengaged, for example: external mentors can be vital in personalising their learning. Equally important is the growth of students mentoring students. The whole area of what used to be called peer tutoring is at last achieving wider recognition through its potential for personalising learning.

The changing character of the workforce and the new technologies are powerful drivers of change in school design and organisation. The huge programme for refurbishing schools and building new ones will offer opportunities for rethinking school organisation in order to affect school design. Traditional schools were designed for students in age cohorts (year groups) taught largely in subgroups (classes) in appropriate spaces (classrooms). Personalising learning may demand new forms of organisation.

The last gateway is student voice. It is probably the most recent in its development but potentially the most powerful of all for personalising learning. For many years, those who have researched student perspectives on school and learning have been astonished at the mature and serious way the vast majority of students, even the most disengaged and alienated, talk about their experience of learning and schooling. They have usually

remained unconsulted about the many changes that have taken place over recent decades. It would be meaningless to say that we are personalising learning unless we involve them in the process. The evidence is clear: young people are deeply interested in these matters and are ready to play a constructive role; and when they are encouraged to do so, the teachers benefit considerably.

So entry to personalised learning may be made through any one of these nine gateways: starting from one gateway soon leads to one or more of the others, as illustrated in box 1. The fact that these gateways are interlinked is an advantage, for though networks of schools or teachers may start in one gateway, they are soon led to different ones, from which other networks started their innovation journey. The danger of generating separate silos of innovation on different themes is thus reduced, and it is potentially easier to unify these different journeys into a coherent whole. The challenge is to create networks of innovation starting from the different gateways according to the needs and preferences of individual networks, but then to bring together the outcomes of the different networks. This can produce an overall, coherent version of personalisation as a well of resources from which everyone can draw. We cannot specify – and should not seek – a formal definition of personalisation before we embark on the journeys of these innovation networks. We shall discover what personalisation is during the journey itself.

There is thus a content issue of determining the broad character of personalised learning for 21st century secondary schooling. This requires showing what it is that schools and their staffs do differently when learning becomes more personalised. The gateways are the content of personalisation.

And there is a process issue of devising, organising and implementing ways of ensuring that the best practices are made available to, and usable by, all those who might wish to adopt them. These processes concern development and research (D&R), innovation, the dissemination of practice and the transfer of professional knowledge.

Box 1

The interconnections between the nine gateways

A commitment to increasing curriculum choice in 14-19 provision leads to rethinking the organisation of the school day and week to allow for mixed-age groups and immersion days on a single theme or subject, as well as to make some new uses of ICT to complement teaching and tutorial sessions and to allow sixth formers to spend more time working from home.

A project on student voice to help students to articulate their needs and wants ('What helps you to learn? What stops you learning?') leads staff to recognise that they could use learning support assistants in a more student-centred way and that increasing technical support could lead to more effective use of ICT, both at school and in the home.

The development of assessment for learning has proved to be an effective way of enhancing students' capacity for learning to learn; the changed style of questioning has given students greater voice and so confidence to engage with staff when they do not understand the content or purpose of lessons.

To ensure that they could meet the needs of 14-19 students more effectively a secondary school and an FE college partially aligned their timetables so that school students could spend part of their week in the college. This provided access to courses that the school could not provide and eased transition to the college at a later stage.

Questions

What linkages do you see in your school or classroom between the nine gateways in their contributions to personalising learning?

In your school, which gateways are:

- most developed?
- relatively underdeveloped?
- candidates for further development and innovation?

Is the leadership for each gateway clearly established?

Personalising learning

The argument is simply stated. A network system of D&R that generates the right scale of innovation that is within the (variable) capacity of every school as well as the system as a whole must be characterised by the three Ds:

- decentralised in its network structure
- distributed in the way innovation is organised
- disciplined in the construction of an innovation agenda.

We need to explore all three.

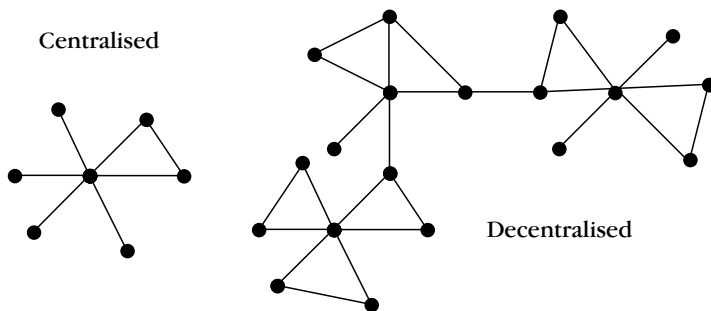
2 The dimensions of networks

Networks of schools and of teachers constitute the infrastructure for innovation and for the transfer of created knowledge and new practices. Networks are as old as the human race: families, clans and tribes are universal networks. They have recently grown rapidly in education, and networking – such as talking to friends and exchanging ideas at meetings – has become popular. Yet there is no agreed vocabulary within the profession by which we talk about, analyse and improve what we do about and with networks and networking. Networks in education have never been more talked about than now; and so the need to enhance the profession's capacity to analyse and make decisions about the extent and value of networks and networking is acute.

Networks involve three basic concepts: nodes, links and hubs. The *nodes*, represented by dots in the diagrams below, are the individuals or the institutions that make up a network. The nodes are connected to one another by *links*, represented by lines. Some nodes are linked to many more nodes than average, and these are called *hubs*.

As illustrated in figure 2, there are two basic network structures, *centralised* and *decentralised*. In the *centralised* or *star* network, a single hub is connected to a number of nodes, most of which have few or no links to other nodes. A secondary school might be such a hub, with a link to each of its feeder primary schools, which rarely have links with one another. Some beacon schools created a network of this type. In a *decentralised* network there are several hubs and variable links between the nodes. The three clusters of friends in a classroom or the teachers in a faculty might look like this.

Figure 2 Network structures



In a centralised network, the hub is in control of network activity and communications. The nodes may collaborate with the hub, but not with one another. If the hub is damaged in some way or decides to withdraw, the network collapses.

In a decentralised network the communication system is more open; collaboration is easier to stimulate; and knowledge potentially travels faster since the members often work laterally. Because there are several small hubs, the network is reasonably resilient, as the withdrawal of one of the hubs does not irreparably damage the rest of the network. Leadership can be distributed among the network; and the lead may rotate from hub to hub.

As a second dimension, networks may be *hard* or *soft*. In a hard network, relationships are formal with clearly defined and differentiated roles; there are clear boundaries between the network and the wider world; and the network tends to be long-lived. Many families take the form of a relatively hard network.

In a soft network, relationships are informal; the boundaries with other networks are loose; and the network tends to be short-lived. Friendship groups tend to be soft networks. In a secondary school, a subject department is usually a hard

network, whereas a working group is relatively soft. Federation, and collegiates are examples of hard networks of schools, though the networks of teachers within a federation may be much softer than the federation itself or than the network of senior management teams. Subject departments are relatively hard networks, whereas cross-subject or cross-year task groups are relatively soft.

A third dimension of networks is their relative strength. *Strong* networks display high levels of trust (or social capital) among the members; they are clearly focused on a task or outcome; and they are well led. *Weak* networks, by contrast, are characterised by wary or antagonistic relationships, a lack of agreement or focus on their purposes and outcomes, and poor management and leadership. (Note that representing networks as dots linked by lines wrongly implies the links are not a variable: in fact the highly variable strength of these links is a crucial quality of a network.)

Formal organisations tend to spawn hard networks in the form of sub-divisions, such as departments and committees of various kinds. Hard networks have advantages in providing a clear overall organisation structure, but they can be weak – a highly dysfunctional subject department in a school being a case in point. Hard networks tend to be hierarchical, relatively unresponsive to outside influence and resistant to change: over time they have a tendency to become sclerotic. Soft networks can be strong, though it takes time for them to build up the levels of trust that make them so. But they are more likely to have a variety of members who, because they are linked to other networks, are more open to influence and change. Soft but strong networks tend to make better innovation networks than hard but weak networks.

A fourth dimension concerns whether a network is *open* or *closed*. Open networks allow, and perhaps even welcome, access and participation to all. Closed networks tend to be exclusive, admitting people because they belong to specifiable categories or have certain qualifications; they have strong boundaries which serve as barriers to intruders; and one gains access by selection or election to membership.

A fifth dimension is the *location* of the network, which may be:

- local – eg a cluster; collaborative, eg an EIC, a LIG or an LEA;
- regional – eg with a Specialist Schools Trust regional coordinator;
- national – eg Trust affiliated schools, subject associations, ASE, NATE;
- international – eg iNet.

The pros and cons of location need to be taken into account. For instance, local networks can be parochial and inward-looking; distant networks may not share values or assumptions and so may have more communication problems. Proximity can be troubled by competition between the schools, but they have the advantage of face-to-face relationships to build up trust. Distance weakens competition, but makes it more difficult to build up mutual trust. (The experience of collegiates and federations indicates there are ways of enhancing collaboration between schools that are in very close proximity.)

These five dimensions should not be regarded as inherently good or bad, but should be judged by their fitness for purpose in relation to any network structure and process.

Networks are currently very fashionable. Every new idea that comes along seems to demand a new network. There is thus a danger of network overload. New networks should be formed only when two conditions apply:

- an existing network cannot be adapted to do the job
- the new network replaces an old network.

Meeting these conditions presupposes a sound working knowledge of your networks.

Questions

What is the character and quality of the main networks, both internal and external, in your school, in terms of the five dimensions of networks?

Which are your most effective and least effective networks?

What are the characteristics of innovation networks?

Questions

What are the strengths and weaknesses of subject departments and faculties as innovation networks? Are there alternatives?

Is there anything distinctive about student networks? Are internal student networks a source for strengthening student leadership? What are the strengths and weaknesses of horizontal (year-group) *versus* vertical (eg house) networks of students? Might inter-school and international student networks be a way of revitalising peer cultures?

Should some of your least effective networks be rationalised or discontinued?

How else might you avoid network overload?

How might your best networks be helped to mature and become more effective or innovative?

The rapid development and growing importance of networks means that school leaders have to take a role in their promotion. Here are six key roles for the leadership of (innovation) networks:

- audit the school's main internal and external networks (or check that others are undertaking audits too)
- analyse them to judge them for their fitness for purpose (perhaps using the dimensions suggested above)
- assess their benefits and costs, to make sure that costs do not exceed benefits
- adjudicate on the priorities, so that the important networks thrive and the ones with little value are terminated
- advocate cross-membership and links between levels, since this helps co-ordination and the flow of knowledge
- adapt through monitoring changes in value, since today's key networks may no longer be valuable tomorrow.

The Specialist Schools Trust has its own network infrastructure in the form of regional coordinators, subject leaders, expert panels, lead practitioners, lead learners (as developed in the maths team) and so on. If the quality of this infrastructure could be improved, the tasks of D&R and innovation would be made easier for affiliated schools. At the same time, the various networks would need to be related to one another in a coherent way to make a network system, one that was understood by all. Moreover, success within the newly developing iNet will depend in part on the ability of each country's internal network system to integrate into an international network system. This applies to how a school links its own internal networks to iNet and to how an inter-school network in one country adds to its membership from other countries through iNet.

Questions

What do you see as the relationship between your existing networks and the new networks that will arise through iNet?

What do you think is the potential of virtual networks, within England and internationally?

3 Distributed innovation

A network...is a group of organisations working together to solve problems or issues of mutual concern that are too large for any one organisation to handle on its own.

Priscilla Wohlstetter *et al*, 2003

In the past, individual teachers were expected to innovate in the privacy of their autonomous classrooms. Inevitably such innovation was relatively incremental. That is, it did not depart in any fundamental way from previous practice, nor did it disrupt the routines and culture of the school as a whole. Such innovation required relatively modest amounts of time and energy, and if the new ways did not work out as expected, they could easily be abandoned.

In the 1970s and 1980s, ambitious headteachers often attempted bolder innovations that reached beyond the confines of individual classrooms – and usually moved on to a promotion before the degree of the innovation's success or failure came to light. But after the reforms of the late 1980s, institutional innovation declined sharply, and the pressures of accountability led to a perception of standardised conformity. Innovation continued, of course, but was often intentionally left unpublicised.

Radical innovation, as opposed to the incremental type, is a major change that departs in a significant degree from present practice. Its alternative name of 'discontinuous change' indicates that it is potentially disruptive of both the institution as a whole and the individuals within it. Innovation always involves taking risks: there is no such thing as risk-free innovation.

The more radical the innovation:

- the more time and energy are needed to design and test it
- the greater the disruptive potential
- the greater the risk that things will go wrong.

Not surprisingly, radical innovation is approached with caution, even reluctance. The education service does not embrace radical innovation with enthusiasm, but there are times when goals seem difficult to achieve without radical innovation.

The more radical the innovation, the more sensible it is to proceed with an innovation that can be shared within a network of contributing schools and/or teachers: this increases the total amounts of time and energy available for the task, eases the potential disruption in any one school or classroom, and reduces the level of risk involved because it is shared.

Exactly how can innovation be distributed among the network? Distribution takes three basic forms:

- spliced or grafted onto an existing practice
- segmented or decomposed into smaller pieces
- sequenced or divided into units of time.

We shall examine in turn these three ways of distributing innovation.

Spliced

Sometimes a school or teacher learns that another school or teacher is doing something in a slightly different way and decides to adopt the practice. So they graft it onto what they currently do (like a horticultural graft) or splice into their current practice (like an extra strand that strengthens a rope). This form of innovation or knowledge transfer is relatively easy as long as the innovation involved is relatively incremental. Transferring incremental innovation within a network is not difficult as it involves a minor modification that is attractive because it has added value. The innovation is spliced into pre-existing practice, perhaps with a few minor adjustments. The greater the difference between the imported practice and the existing practice, the harder it is to splice.

Spliced innovation is very common and there is substantial experience of how to do it successfully. Personalising learning can be advanced through spliced innovation. Segmented and sequenced innovation are much rarer and so experience of them is limited. We need to learn how to engage in them successfully, for they are becoming more important as radical innovations are beyond the capacity of the individual unit, whether a school or a teacher. Where personalising learning involves radical innovation, segmented and sequenced innovation are in order. The nine gateways offer a ready basis for distributing innovation by segmenting and sequencing the deeper aspects of personalising learning.

Segmented

Sometimes a large innovation can be decomposed or partitioned into smaller pieces or segments. In this case, the innovation has to be designed with an overall architecture that describes the segments and shows how they fit together. The segments can then be allocated to the units, and developed and tested independently, before being aggregated to function as a coherent whole. At the end of the innovation period, the network members assemble the segments into a whole which can then be made available to all. Since members have all engaged with the innovation in part, the ground is prepared in each unit to import the whole.

Many lessons can be segmented, because they are seen to be made of parts. One school or teacher could be working on the beginning of a lesson and another on the end of the lesson. Other partners could work on elements in the middle. The segments can then be put together to create a whole lesson. The segments are structurally independent of one another, and so can be worked on separately, but when they are reassembled they function as a whole. Each member tackled just one element (A or B or C etc) but gets the benefit of all (A+B+C etc).

Sequenced

Not all large innovations can be conveniently split into segments. Moving from a three-term year to a five-term year cannot be decomposed into segments, as a lesson can. In such cases, the distribution has to take a different form by which the innovation

is *sequenced* rather than segmented. One network member, A, tackles the innovation *as a whole* for a set period, determined by the limits of its capacity. It then passes the partially developed innovation on to the next network member, B, with a mixture of what has been achieved so far and the lessons learned. B then takes the innovation forward for a period and in turn passes the innovation to the next member in line, C, in a similar way, but also passes its learning back to member A. If five network members tackle the innovation in sequence, the final product is then A+B+C+D+E, a common property of network units that is greater than any of them could have achieved alone. One strength of the sequenced method is that the participants have to record the lessons being learned during the innovation, and this makes transfer of the innovation to others very much easier.

Perhaps the best way of distributing innovation or disseminating good practice is to avoid the notion that one school is acting as the donor of a 'good practice' to a recipient school. Instead, the donor might say to the recipient, 'Here is a practice we believe is good and some lessons we learned in developing it. We now hand it over to you, in the hope that when you modify it for your circumstances, you will be able to improve it still further, and then pass it back to us with the lessons you have learned.' This makes the ideal innovation network, in which there is continuous improvement of professional practice through distributed innovation and a sustained flow of transferred knowledge among the network's members. As the members get to know and trust one another, it becomes easier for all to exploit more fully their combined intellectual capital.

An issue in both segmented and sequenced innovation is the amount of innovative activity that any one unit (school, teacher, team) can cope with. A distributed innovation network has to answer three basic questions:

- how much innovation do we need to solve this problem?
- how much innovation can each of the units cope with?
- how can we ensure that activity is allocated to units according to their capacity, which includes their possession of the requisite interest, talent and skill, as well as the necessary time and energy?

Questions

To what degree can personalising learning depend on incremental innovations that can be transferred easily by splicing among networks of schools and teachers?

Do some aspects of personalising learning in the nine gateways depend on more radical innovation?

If so, what particular topics or themes require which ways of distributing the innovation: segmented or sequenced?

Are your networks sufficiently well developed to engage in segmented and sequenced innovation?

Is it possible to create segmented and sequenced innovation in student networks, on topics such as student voice?

What kinds of leadership and support does distributed innovation need?

4 Disciplined agendas

In innovation networks it will be essential to avoid the mistakes of educational innovation of the 1960s, when in the spirit of letting ‘a thousand flowers bloom’ many schools and teachers pursued their own preferred innovation with little attention to what everyone else was doing, with no effort to demonstrate that an innovation was a genuine advance, and with scant regard for what would be needed to ensure that the innovation might be transferable to others. Moreover, since innovation was atomised, large and radical innovations tended to be neglected as, apart from national projects (eg Schools Council, Nuffield), a system or infrastructure for distributing an innovation among multiple units was lacking.

So the first element of a new, disciplined approach would be to seek agreement on the main priorities for innovation to personalise learning. As a result effort and energy would be both concentrated and distributed, and the likelihood of success would be enhanced. A network has to be able to focus on a limited agenda, in which there is not just an agreed general topic, but a problem that the innovation is going to solve. So every network has to engage in a process to determine:

- the importance of the problem
- the urgency of a solution
- the clarity of the problem to be solved
- the estimated resources needed to solve it
- the distribution of labour and responsibility to solve it.

Questions

Is it possible to reach agreement among participating networks on priorities and a disciplined agenda for innovation in personalising learning?

Can this be done without creating an inhibitory top-down approach that could stifle innovation?

Do the nine gateways offer a way of introducing a degree of discipline without damaging local autonomy and creativity?

It was suggested in *Working Laterally* that part of the disciplined approach to innovation would be a more robust approach to establishing that good practice and best practice really are ‘good’ and ‘best’. In a period of active innovation, the notion of ‘best practice’ is of particular importance, since the implication is that it is better than other good practices, that is, a more powerful way of teaching and learning than anything similar at hand.

A key criterion for good practice has been proposed: that the practice should have high leverage for teachers, that is, the practice should have a high impact on students (their achievement, attitude, behaviour, etc) for a low energy input. Spreading practices that are claimed to be ‘good’ or ‘best’ but in fact are of low leverage – small impact on students for a high teacher energy input – is counterproductive.

A second type of leverage is suggested here, namely that a new practice that involves a different behaviour from students should also have high leverage for them as well as for staff. Assessment for learning and learning to learn are important precisely because they are ways of helping students to work smarter, not harder.

Another important criterion for good practice is the ease with which it might be transferred from one teacher or one school to another. Some innovations may be easy to transfer because a relatively simple principle is involved, one that can be adapted to a variety of circumstances.

Often, however, the more radical the innovation the harder it is to transfer. Those who pioneer radical innovations need to keep

track of the lessons they learn during the innovation, and these lessons need to be transferred to the recipient as an inherent part of the innovation.

Lessons learned during an innovation need to be transferred as an inherent part of the innovation.

Distributed innovation is effective in part because members of the innovation network are constantly sharing the lessons learned and so easing the innovation and transfer processes. There is always a danger that innovators offer an innovation in too polished a form to others. When innovations are ‘good enough’, with some rough edges, and not too far from a recipient’s current practice, they are easier to transfer. ‘Sharing good practice’ might mean merely *describing* what one does to a colleague, and this may not be a good way of transferring the knowledge. That is more readily achieved if one provides a *narrative* of how one came to embark on the innovation and the lessons one learned in developing it.

Questions

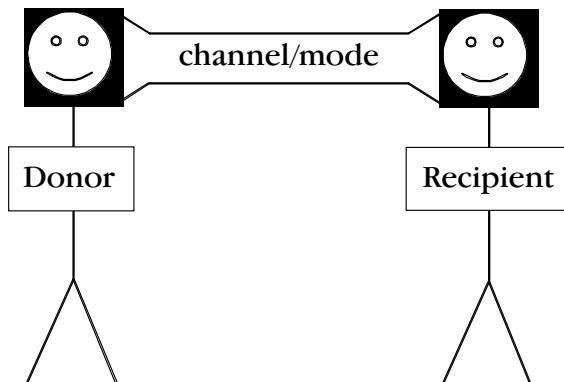
Have you kept a record of the lessons you learned when you successfully created an innovation?

When you want to transfer a practice from another to yourself, do you remember to ask not just for a description but also for the lessons they learned in getting it to work for them?

5 Knowledge transfer

Transferability depends not just on the practice itself but also on the character of its source as well as the recipient. Where the recipient sees the source as both credible and trustworthy, transfer is easier – and this is particularly so when the transfer is peer-to-peer and the respect and trust are mutual. Successful transfer is least likely where the recipient thinks the donor lacks credibility and cannot be trusted. So teachers of the same subject, who are members of the same epistemic community, find it easier to transfer many classroom practices than do teachers of different subjects. For this reason, internal transfer within a school across departmental boundaries may be more difficult to achieve than transfer between teachers of the same subject in a network comprising different schools.

Figure 3 Knowledge transfer



If the practice to be transferred contains a high level of tacit knowledge, that is knowledge which cannot easily be put into words, it will tend to be 'sticky'. By sticking to the donor it will

**Transfer between departments within a school
may be more difficult than transfer between teachers
of the same subject in different schools.**

be difficult to move. The more radical the innovation, the more 'sticky' it is likely to be. To get round this, the donor and recipient need opportunities to work together in a face-to-face relationship: mentoring and coaching are often essential to the transfer of tacit knowledge. The strengths and weaknesses of videoconferences and developments in collaborative software in this regard have yet to be documented.

Transfer is thus most likely to be successful when it is peer-to-peer and the mode or channel of communication is through a face-to-face relationship. Written communications can produce knowledge transfer, but are generally inferior to a direct relationship between donor and recipient. It remains an open question what the strengths and weaknesses of the new technologies might be in knowledge transfer.

The recipient's attitude is also crucial to successful knowledge transfer. The recipient must be receptive to the new practice and have what the literature calls a high absorptive capacity. This includes the readiness to abandon the old practices that the new practice will displace. If the recipient of the new practice is a highly experienced teacher, there will be a natural reluctance to abandon what has hitherto served reasonably well. Convincing the recipient that the new practice is of higher leverage may be crucial to winning a receptive attitude and readiness to abandon a demonstrably inferior practice. Active support may be needed to help the recipient master the new practice if it is radically different from the previous practice.

In short, knowledge transfer requires pull as well as push if it is to be successful.

Questions

What are the implications of the problems of transferability for:

- networks of schools and teachers of the same subject specialism?
- regional/local networks of schools and teachers of different specialisms?
- international networks?

6 Towards a new educational imaginary

The political philosopher Charles Taylor (2004) has coined the term ‘social imaginary’ to capture how, in any age, members of society make some unquestioned assumptions about the social and moral order in which they live. This is what constitutes normality for them in their practices and in their relationships to other people. Taylor is interested in how the social imaginary of the middle ages, dominated by a religious ideology and cosmology and by a deeply hierarchical social structure, gave way over time to the modern social imaginary.

Here I suggest that within any social imaginary lies an educational imaginary, and that at present we are in the midst of a transition from the 19th century educational imaginary to one for the 21st century. The 19th century educational imaginary had the following features:

- students are prepared through education for their fixed station in life (‘the rich man in his castle – or running the Empire – and the poor man at his gate’);
- intelligence is mono-dimensional, immutable and innate;
- schools are culturally homogeneous – by social class, gender, religion, ethnicity, giving them high social capital among the students;
- schools of a particular type are very similar and essentially interchangeable;
- schooling is strictly limited for the majority – the elite need higher education but too much education is considered dangerous for the ‘lower’ classes;
- school is a place with clear and rigid boundaries;

- school is designed and organised on the basis of the factory model;
- roles are sharply defined and segregated: teachers are clearly teachers (in their academic gowns) and students are dressed as, and behave like, students;
- schools and teachers are autonomous units: schools work quite independently of other schools and teachers work alone in the privacy of their classroom;
- education is producer-led: teachers know best and so have power to decide.

During the 20th century, schools and teachers have been slowly moving away from this educational imaginary – but towards what? The 21st century educational imaginary is emerging slowly and seems to have the following, very different characteristics:

- students' identities and destinations are fluid, and intentionally so, since to think otherwise is to subject them to stereotypical and limiting expectations;
- intelligence is multi-dimensional, plastic and learnable;
- school is culturally heterogeneous, since students are often a mix of social class, gender, religion, ethnicity, with a lower level of social capital;
- schools of a particular type are highly diverse and not interchangeable;
- school is designed and organised to provide personalised education for all students;
- education is lifelong for every student, and covers informal as well as formal learning;
- education is unconstrained by time and place, partly because it takes place also in the home and community and partly because of the impact of the new technologies;

Personalising learning

- roles are blurred and overlapping: teachers learn as well as teach, students mentor other students as well as learn for themselves, and new professional roles emerge to complement that of the teacher;
- schools and educators are embedded in complex, interconnected networks;
- education is user-led (though at what point students rather than their parents are the users is an open question).

Personalising learning, as the common theme to the nine gateways, may be seen as the driver from the 19th century educational imaginary to that of the 21st century. In the past, social imaginaries evolved very slowly, so people died before their social imaginary had changed very much. The evolution of educational imaginaries is now so fast that the same leaders live through the transition and have to lead and manage it. It is this that makes the leadership of personalising learning so important and so challenging.

Question

Does the notion of moving from one educational imaginary to another have implications for how we conceptualise the nature of leadership for transformation?

7 A network system for personalised learning

The education service is moving from a world of autonomous teachers and schools working in isolation (competitive atomism) to one where individuals and institutions work together in the interests of the common good (collaborative holism). This is the route to transformation of the new educational imaginary through innovation networks. Personalising learning paves the way. The Specialist Schools Trust will develop its network system or infrastructure for innovation in terms of national subject networks with subject leaders, and regional networks with regional coordinators. In the network system as a whole, these will need to be coordinated with other networks, such as expert panels, lead practitioners, and the Raising Achievement: Transforming Learning partnerships, as well as with non-Trust networks systems, such as Networked Learning Communities (NCSL) and Leading Edge Partnerships (Innovation Unit at DfES). Student networks of a formal kind are also increasing. Throughout the affiliated schools there will need to be a general understanding of how the Trust's network system is structured and how it operates, as well as awareness of how the system interacts with external networks.

Subject networks will spearhead the personalisation of those aspects of teaching and learning that count in the daily experience of students in their learning, especially in classrooms where a subject is taught and learned. New ways of teaching and learning the subject will be devised and transferred through the subject networks, operating at national, regional and local level, but co-ordinated nationally by subject leaders. There is likely to be considerable interest in what has been called the lesson study (Stigler & Hiebert, 2000) or the

research lesson (Dudley, 2003) by which, following a Japanese approach, teachers work together to develop model lessons to teach an agreed content that, for whatever reason, is proving in current practice to be difficult for teachers to teach and/or for students to learn. Several of the gateways provide perspectives on the direction for innovation in the research lesson.

Where personalising learning depends on whole-school policies or action, it can be developed by specially designed soft networks that come together because of a shared interest in one or more of the nine gateways. Such networks can operate nationally, regionally or locally according to network membership.

8 Conclusion

It is through the networks of distributed innovation that personalising learning will be developed and sustained at system level. Every school and every teacher will become an innovator. Some teachers/educators and some schools will engage in modest innovation, mainly adapting and implementing the innovations that are transferred to them by pioneers. Other teachers/educators and schools will work at the leading edge of more radical innovation, advancing the nine gateways and demonstrating how the interconnections between them can move the education service from the 19th century imaginary to that of the 21st century and thereby proving how, in a relatively short space of time, fundamental changes can be made to ensure that the needs of every student can be more fully met.

Living networks are self-generating. They continually create or recreate themselves by transforming or replacing their components. They undergo continual structural changes while preserving their web-like patterns of organisation.

Frank Capra (in McCarthy et al, 2004)

A product of superior quality is generated by the collective effort of a network: an effort in which each participant finds a reward from the freely contributed effort of others. So, innovation is the product of a collective intellect. No R&D department can match the power of a global, co-operative network. This innovation gives an advantage to those who participated in the networked process of innovation: they are first adopters, first users, first learners and know better which kinds of products and processes can be developed from this innovation path.

Manuel Castells, 2001

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